

## **Chapter 1 Introduction**

### 1.1 History of Japan's agricultural technology extension system

#### 1.1.1 History of Agricultural Technology Consultation

##### (1) Pre World War II

It is since 1868 that Japan has turned to modern political and economic structure and after 1871, advanced technology from the West were introduced to replace the customary agricultural production, and also foreign instructors were invited. However, the Western agricultural method did not suit the Japanese small size, petty rice-farming, which centered on human power and use of self sufficient fertilizer, and as a result, it did not establish in Japan. Consequently in Japan, technology to increase cereal yield per hectare of land was developed centered around improving variety and developing the knowledge and technology of soil fertilizer. Between 1878 and 1882, the average yield of rice was said to be 1.8ton/ha.

In 1885, the government established the first Agricultural Technology Training System by setting up Traveling Agriculture Lecture System in the country and prefectures, and instructors were dispatched systematically to agriculture study groups. This system continued until 1897. Because of this system, the cultivation techniques of rice were improved and the average yield of rice between 1888 and 1892 became 2.13ton/ha.

In 1893, National Agricultural Experimental Station was set up, and in 1894, Prefectural Agricultural Experimental Station Regulation was proclaimed and thus Agricultural Experimental Stations were set up one after another. By 1900, 33 out of 46 prefectures had set up Agricultural Experimental Stations.

With the creation of cold resistant varieties which were results of experimental research and also with the development of ammonium sulfate (ammonia nitrogen fertilizer) industry, usage of ammonium sulfate increased greatly after 1919. However, average yield of rice between 1918 and 1922 stagnated at 2.83ton/ha.

##### (2) Post World War II

In 1945, to increase food production, the government established a new Agricultural Technology Training System. Below is the outline of this system.

- (a) Government will aid the prefectures and establish about 2000 (1 in every 5 villages) Agricultural Technology Training Farms during the 3 years after 1945.
- (b) Training Farms will be co-operated by the prefecture's Agricultural Experimental Stations and Agricultural Association (Farmer's Organization) and each farm will have 4 trainers working on approximately 3ha of land and will actually cultivate crops and raise domestic animals.
- (c) Establish food production practice groups and promote collaboration of production technology.
- (d) Show agricultural technology to farmers in the training farms and aim to improve the trainers' skills.



Demonstration lecture on cultivator (1953)

Apple control lecture (1952)

(Photos: "Agricultural Extension 50 Years Anniversary Magazine" (Edited by Hokkaido Improvement Extension Workers Conference, 1998))

This system continued until April, 1948, and in conjunction with its abolition, "National and Prefectural Cooperative Agricultural Extension Service" based on Agricultural Improvement and Promotion Law was established, which is the new extension system based on US's agricultural extension service.

### 1.1.2 Distinguishing features and progress of cooperative agricultural extension service

#### (1) Distinguished features of cooperative agricultural extension service

Cooperative Agricultural Extension Service was established based on the Agricultural Improvement and Promotion Law (1948). This law states "in order to efficiently develop Agricultural law, to increase agricultural production and to improve lives of farmers, farmers are to acquire beneficial and practical knowledge and widely exchange this to promote social welfare" and thus it is a training service to assist the farmers so that they can improve the agriculture industry and agricultural lives by themselves. The operation is to be conducted cooperatively by the prefectures and the Ministry of Agriculture, Forestry and Fisheries, and has several features that were not seen in Agricultural Training before.

Firstly, the training target has changed from "object" to "person". It has changed from what has been a one way hierarchical training given from top down to pressure for increase in production to a way which the farmers can think for themselves the way to manage their agricultural industry and train and develop the farmers.

Secondly, it has raised the issue of improving the lives of the farmers. Until then it has been thought that if agricultural business management is done correctly, lives of the farmers should improve together with it, however the idea has changed now that improving and rationalizing the lives becomes necessary to improve business management. Therefore, the concept now is to assist the farmers to improve their lives by themselves by driving the farmers' motivation to improve and by providing rational techniques and knowledge.

Thirdly, it has put attention to training and developing young farmers. Until then, the focus of training was on acquiring the Farmers' Spirit instead of acquiring knowledge of agricultural technology and agricultural business management. However, now the training is focused on training the next generation farmers by practice and promoting club activities of "learn by doing", "solve by practicing".

Agricultural Improvement and Promotion Law No. 13 states “The central government, based on this law’s regulation, is to grant subsidy for cooperative agricultural extension service to the prefectures so as to support the prefectures extension service of agricultural industry in cooperation with the Ministry of Agriculture, Forestry and Fisheries and for the farmers to be able to acquire and exchange beneficial and practical knowledge regarding agriculture and agricultural lives as well as apply this knowledge effectively. “ Therefore, by having the central government assist in bearing the necessary costs to execute this service, it was aimed to carry out this service under cooperative liability of both the central government and the prefectures.

The significance of carrying out the extension service in cooperation between the prefecture and the central government are the following. Firstly, the central government, in addition to promoting the most up-to-date technology nationwide, it must unfold an extension service standardized across the nation, keeping in mind the balance among the prefectures, in alignment with the country’s direction in agricultural administration such as restructuring the agricultural production in relation to the direction of demand. Secondly, the prefectures must promote a balanced extension service within its own prefecture in alignment with the prefecture’s direction in agricultural administration by making use of the special quality of each region.

In order to execute this type of service, the central government places specialists with special qualifications based on standard and at the same time, in order to support financially, it does not provide a normal subsidy but instead a “cooperative agricultural extension service grant ”.

## (2) History of Cooperative Agricultural Extension Service Development

Together with the Agricultural Improvement and Promotion Law (1948), Department of Agricultural Improvement was established within the Ministry of Agriculture, Forestry and Fisheries and within this department, the Division of Extension was also set up. On a prefectural unit, Agricultural Improvement Committee was set up on a prefectural level and regional level in order to promote the extension service.

The activities of the improvement extension workers concentrated on going around the farmers’ plots and focused on service. Additionally, movies and slide shows were shown at town hall meetings and also many plot exhibitions were held. Mainly individual training was held for technological training, and new technology such as warm eclectic rice nursery (method to raise seeding quickly and strongly) was introduced. For livelihood improvement, improvements in kitchen and stove were introduced as well as preserved food for busy season and western style working clothes.

In 1951, the three committees of Agricultural Improvement Committee, Agricultural Land and Agricultural Coordination were consolidated, and Agricultural Committee was set up.

In 1952, part of the Agricultural Improvement and Promotion Law was amended, and as a result, the businesses that can be subsidized as part of the extension service increased and provisions for the extension workers’ status, tasks and appointment qualifications were outlined.

On the other hand, there already was a young farmers research group set up voluntarily for technology of food production increase and therefore, training for young farmers were conducted using this research group as a place for discussion. In 1952, the number of youth clubs counted approximately 24,000 and the number of members reached 730,000.

The extension activities at that time were conducted by having one extension worker look after the towns and villages and developed activities that suited the farmers.

Training modules included teaching how to use herbicides and insecticides that were new technology as a result of experimental research and also advising on any seasonal issues. By 1951, there were approximately 96,000 exhibition plots nationwide.

From 1955, the Japanese economy entered its growth period and from the issue of food shortage, introduction of stock raising, fruit growing and vegetable growing started. Birth of new technology started to diminish and improvement in the planting system as a whole became more necessary instead of improvement of individual techniques.

From this stream, idea of "Extension Planning" started, which was to understand the actual conditions of each farms and regions, find out the issues from them and promote planned and continuous activities.

After 1958, because demand for food stabilized and the economy entered into a period of rapid growth, farm villages' workforce was absorbed by the metropolitan cities and especially the younger people's out flow to the cities was significant. Consequently, the farm workforce became more and more old aged and composed of women and furthermore, as years passed, many people started to hold side jobs.

In 1958, the Agricultural Improvement and Promotion Law was revised and the Agricultural Improvement Extension station was established as a lawful facility. The aim of this was that by establishing an Extension station, it would strengthen communication of the extension activities among the improvement extension workers, heighten the synergy and planning of the extension activities suited for the specific characteristics of each region and at the same time, it would bring them closer to the towns and villages as well as to the Agricultural Cooperative. By this reform, 1586 Agricultural Improvement Extension stations were established nationwide.

Additionally, General Farming Training Facility and Farm Drought Management Training Facility were set up, and therefore the extension workers' activities from the business management point of view became active. Furthermore, as a new issue, training support, both technical and managerial, were requested for the agricultural structural reform business conducted by the towns and villages and Agricultural Cooperative, and in conjunction with the development of regional agricultural business, the supportive activities of the extension workers towards the local Agricultural Cooperative became a strong focus.

On the other hand, securing farming successors became a large issue for agricultural administration and in 1962, Rural Youth Education Promotional Committee was established. From this year, funding system for the youth club's acquisition of technical knowledge started. In 1964, system to fund for startup of farming successors started.

In 1963, in order to strengthen the reform, the Agricultural Improvement and Promotion Law was partially revised and it was decided to set up a newly specialized technical staff, strengthen communication between the extension business and experimental research organizations, strengthen extension workers' training, and provide agricultural improvement and extension allowance.

After 1966, the Japanese economy kept growing and agriculture population declined, especially there was a significant decrease in the number of new graduates becoming farmers. Due to the decline of agricultural workforce, new rural activities started such as contract cultivation and collective farming.

In the 5 Years Plan of 1965, merging the Extension stations and improving efficiency of the extension

activities were planned. Extension stations were merged into 630 stations from 1586 stations nationwide. Agricultural improvement extension workers were divided into those who will look after the towns and villages called Regional Improvement Extension workers and those who will look after specialized sections called Specialized Improvement Extension workers.

The issues facing the Agricultural Improvement Extension field are training and development of agricultural housing, training and development of core agricultural business managers, issues regarding many general agricultural measures such as irrigated rice fields which arose from increased structure of farmers from production to shipment such as mechanization, collective farming, joint farming, etc. Furthermore, there were other issues regarding regional development such as regional agricultural promotion, and with all this, training modules became more advanced and complicated.

In 1975, a centralized extension information center was established in order to efficiently share and utilize information among the extension organizations.

In 1968, to address the issue of lack of farming successors, the Ministry of Agriculture, Forestry and Fisheries opened a National Farmers Academy aimed to raise and educate people who will promote regional agriculture and become core of social development. At the same time, Agricultural Education Facilities of the prefectures were turned into Prefectural universities and therefore the education system and facilities were set up.

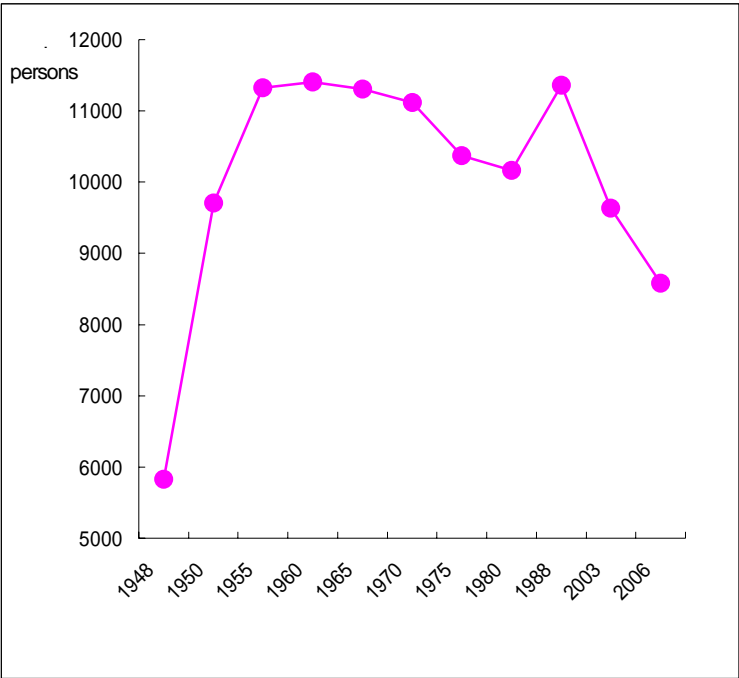


Figure 1.1 Change in number of Agricultural Improvement Extension Workers

Source: Ministry of Agriculture, Forestry and Fisheries

**Chapter 2 System of Cooperative Agricultural Extension Service**

**2.1 Basic stance and role of Cooperative Agricultural Extension Service**

Cooperative Agricultural Extension Service is implemented as the basic promotional method of agricultural administration to technologically demonstrate and establish the results of the experimental research organizations in response to the characteristics of each region and to effectively promote the transition of technology to the field. Through the development and extension of technology, it aims to improve the technological and managerial abilities of farmers and organization’s management bodies as well as to support the implementation of agricultural administration by developing those people within each region who are in charge of developing human resources and organizing them.

Extension service is considered as one of the nation’s important policies in 110 countries such as the

United States.

And in Japan, it is carried out as a “Cooperative Agricultural Extension Service” together with the prefectures. Its distinctive features are 1. it is carried out such that the central government addresses the agricultural administrative issues such as stability of food supply, strengthening of international competition, converting to an agricultural production emphasizing environmental preservation, and the prefectures are to promote regional agriculture that fits the region’s actual conditions, under the basic principles of the agricultural administration, 2. Extension trainers are always on-site to be able to directly communicate with the farmers and be able to conduct extension activities of technology and management, and by this, they can train the farmers who are working to improve their own farm management.

Within the basic plan on Food, Agriculture and Rural Areas, towards achieving the basic plan, in order to promote an effective extension service and to strengthen the coordination between the national government and the regional organizations, it is stated that it will aim for a technological extension based on the regional characteristics. For this, it is necessary for the extension services to promote technological innovations and practice in the agricultural production sites, to secure trust of the consumers, to secure international competition, to develop the management skills of those people in charge, and to aggressively support activities for environmental preservation of rural areas. For the support, it is aimed to rapidly extend a model technological system in line with the new technology developed and with the regional conditions, to fulfill the technological guidance of the extension trainers so that high level production management activities can unfold, and to steadily promote the policies.

#### (1) Role of the Central government

- Draw up “Operational Guideline” which becomes the basis of the extension service
- Grant “Cooperative Agricultural Extension Service Grant ” to prefectures which becomes the basic operating expense

#### (2) Role of the Prefectures

- Draw up “Working Policy” which becomes the basic guideline to execute the extension service
- Place extension trainers to extension training centers, prefectural agricultural improvement administration divisions and agricultural test stations
- Extension trainers are to unfold extension training activities to farmers based on the “Extension Training Plan”. (See photos)



Setting up demonstration fields (greenhouse)



Setting up demonstration fields (rice paddy)



Checking pest outbreak condition of soybean

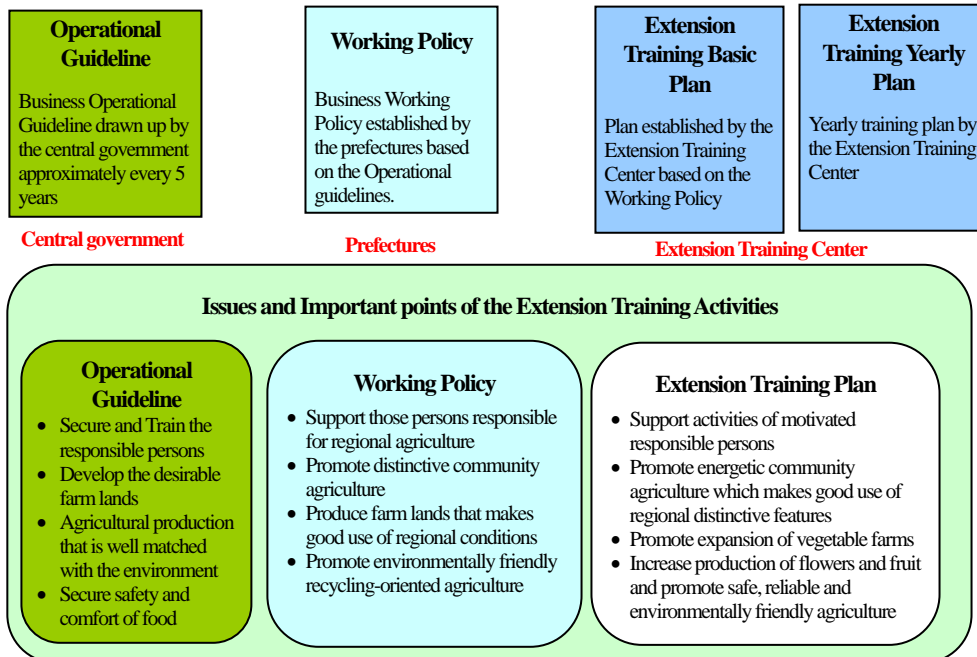


Lecture seminar on fertilizer usage method in consideration to the environment

(Photos: Taken from the homepage of the Ministry of Agriculture, Forestry and Fisheries Management Department)

Extension training plan are 1. capture the background of what caused the issue, 2. draw up assignments that match the farmer's actual conditions to come up with solutions, 3. consider how and when to approach the farmers, 4. understand how the farmers improved and what results were achieved as a result of this approach.

Figure 2.1 Flow of Extension Service



Source: ("Role of the Extension trainer and the developmental direction of the future extension service" September 2006 Ministry of Agriculture, Forestry and Fisheries Management Department, Extension/Women Division)

## 2.2 Organization of the Extension Service

### (1) Organization of the central government

There is the Ministry of Agriculture, Forestry and Fisheries Management Department, Extension/Women

Division and this department is in charge of extension service planning, administration of the extension service, guidance of the extension activities method, training and conducting the qualification examinations of the extension staffs, research of the current status of the extension service, and collecting materials needed for the extension activities.

Additionally, the Regional Agricultural Administration Departments support and look after the administration of the extension services of the prefectures.

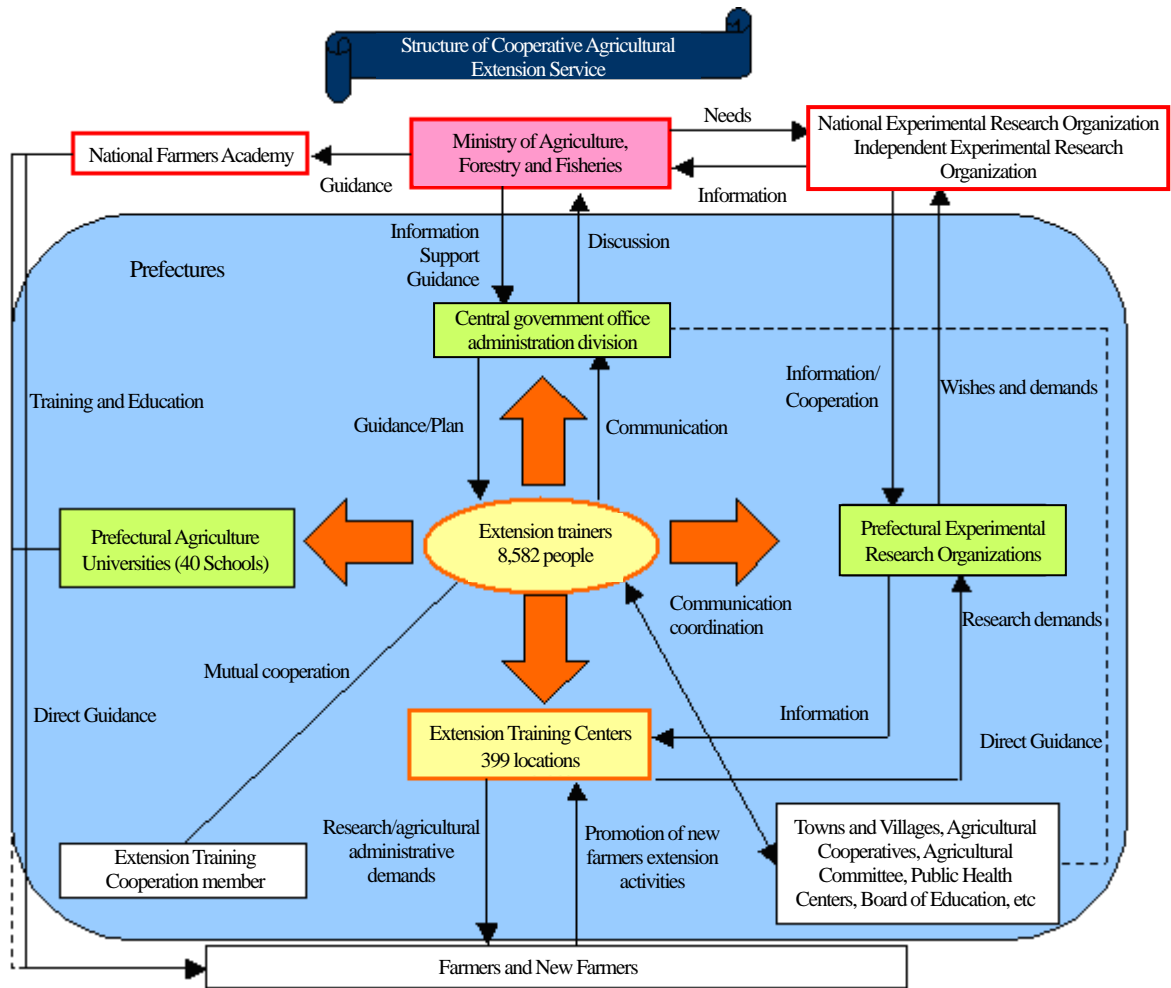
## (2) Organization of the prefectures

In the prefecture's central government office, there is the Agricultural Improvement Extension Service Administrative Division and operates the service together with the extension training centers.

The activities of the Extension training centers are 1. coordinating communication among the extension trainers, 2. drawing up plans for extension activities, 3. coordinating among towns and villages and agricultural industry groups, 4. providing information to farmers, 5. providing information and consultation to new farmers, 6. analytical researching of soil and growth, etc.

Extension trainers are those who have direct contact with the farmers and therefore within the prefectural staffs, they are to hold experience in agricultural technology training and also they must have passed the qualification exam held by the central government in order to be appointed as an extension trainer.

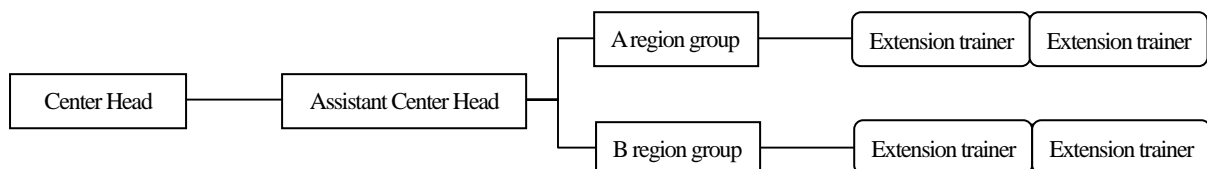
Figure 2.2 Structure of Cooperative Agricultural Extension Service



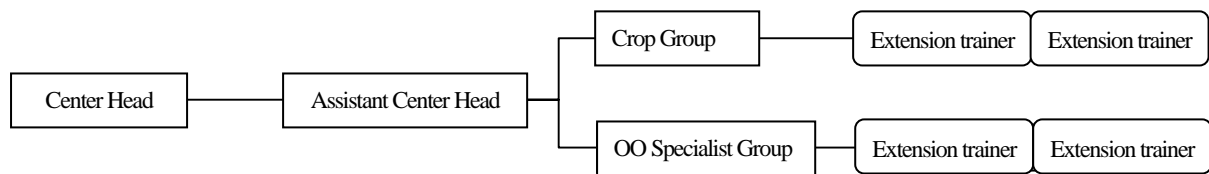
Source: "Outline of Cooperative Agricultural Extension Service" (October 2006 Ministry of Agriculture, Forestry and Fisheries Management Department, Extension/Women Division)

Figure 2.3 Example of Structure of activity of the Extension Training Center

(Method of Dividing by Region) --- Conduct Extension activities by dividing the region under jurisdiction into several activity areas and create a team of extension trainers for each activity areas



(Method of Dividing by Specialty) --- Conduct Extension activities by creating teams of each specialists for the whole region under their jurisdiction



Source: "Outline of Cooperative Agricultural Extension Service" (October 2006 Ministry of Agriculture, Forestry and Fisheries Management Department, Extension/Women Division)

### (3) In response to decentralization

Under the trend of decentralization, as well as securing the basic framework of the cooperative service which is necessary to achieve agricultural administration reform, in order to heighten the independence and uniqueness of the regions, regulations are being eased such as the abolishment of the regulation to *place extension centres* and at the same time, to enhance flexibility tax revenue source is being transferred to the local regions. Additionally, in order to precisely respond to the needs of the farmers and consumers who are diversifying and becoming more sophisticated, the slimming of the extension organizations are being undertaken, as well as responding to decentralization by promoting sophisticated and prioritized extension training activities.

### (4) Training of Extension Trainers

In order to be able to meet the various advanced needs of the farmers at all times during their daily extension training activities, training for the extension trainers are conducted to train and develop the extension trainers.

Training that are more efficient to be conducted in unison and training programs regarding new technology that has been developed on a nationwide level are conducted on a national level. Training that addresses the regional issues as well as on-site training are conducted on a prefectural level.

## 2.3 Extension Service Budget

Based on the Agricultural Improvement and Promotion Law, expenses born cooperatively by the central government and the prefectures are for 1. establishment of Extension trainers, 2. activities of Extension trainers, 3. operation of the Extension Training Centers, 4. activities of the Extension Training Cooperation members, 5. operation of the farmer training and education facilities, 6. training of the Extension trainers, and 7. training and development of instructors for the Young Farmers' Association. Within this, the expenditure of the central government is a fixed amount given as a cooperative agricultural extension service grant.

### (1) Cooperative agricultural extension service grant

"Cooperative Agricultural Extension Service Grant" is a feature of extension service budget. Until fiscal year 2005, approximately 20 billion to 30 billion yen were granted in total from the national government to the prefectures. Of this, in fiscal year 2006, approximately 16 billion yen, which amounted to the labor cost, were transferred to the prefectures as tax revenue source, as part of decentralization. This meant that that the prefectures are to take more responsibility and self-initiative to conduct the extension services.

## (2) Agricultural Improvement Fund System

There is an Agricultural Improvement Fund System whereby those farmers who have plans to introduce new technology and crops or to start manufacturing and direct sale of agricultural produce (approved farmers, etc) are loaned interest free funds to purchase facilities, equipment and materials required for the improvement of agricultural management. This fund also covers purchase of domestic livestock, rent of the farm land, training fees, research and development fees, etc and are granted when new technology is to be introduced to the region as a pioneering initiative project.

To receive the fund, the farmers are to put together a financial plan on business management improvement and submit it to the extension training centres whereby they will review it with the bank and the Agricultural Cooperative. Additionally, there is priority for women entrepreneurs and they are able to receive funding separately from the business management owners.